National Institute of Environmental Health Sciences

Mortality from cold waves in Castile--La Mancha, Spain

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Abstract:

INTRODUCTION: As is known, the effects of extreme temperatures on mortality are characterised by an annual periodicity, with a rise centred in the winter months. The most recent epidemiological studies show that mortality caused by cold waves is, in many cases, comparable to that caused by the severest heat waves. This study sought to quantify the rise in mortality due to extreme cold and the factors that determine the relationship between these variables in Castile-La Mancha (Spain). METHODS: We examined the effect of extreme winter temperature on daily non accidental cause mortality in Castile - La Mancha from 1975 to 2003, for all ages. Quantitative analyses were performed using ARIMA models, with other covariates, such as influenza, pressure trends, relative humidity, and cold wave duration and chronological number. RESULTS: There were two mortality peaks: a short-term peak (with a lag of 3 to 7 days); and a longer term peak (of under two weeks). Excess mortality during cold waves was around 10% per degree centigrade below the threshold temperature for all the provinces except Guadalajara, where an increase of only 4.61% was detected. Mortality increased in response to rises in cold-wave duration and relative humidity. Cold waves occurring at the end of the "winter" season caused the greatest mortality. CONCLUSIONS: This study confirms that daily mortality in Castile - La Mancha increases during cold waves. Efficient cold-wave prevention plans must therefore be implemented. Such plans should be based on in-depth knowledge of the causes that underlie and modulate the relationship between low temperatures and health effects.

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Resource Description

Communication: ☑

resource focus on research or methods on how to communicate or frame issues on climate change; surveys of attitudes, knowledge, beliefs about climate change

A focus of content

Communication Audience: ☑

audience to whom the resource is directed

Policymaker

Exposure : ☑

weather or climate related pathway by which climate change affects health

Meteorological Factors, Meteorological Factors, Temperature

Temperature: Extreme Cold

Geographic Feature: ☑

resource focuses on specific type of geography

None or Unspecified

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Europe

European Region/Country: European Country

Other European Country : Spain

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Injury

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Mitigation/Adaptation: ☑

mitigation or adaptation strategy is a focus of resource

Adaptation

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

A focus of content